In the event of nitrate of silver being used for preparing the paper, it is necessary, obviously, to exclude the light, as otherwise a reducing action will be already set up by solar means alone, but with the salts of palladium or platinum no such action need be feared. According to the kind of metallic salt employed, so the tint of the impression varies, but in most cases an intense black may be obtained where the action has proceeded far enough.

Having described M. Merget's discoveries thus far, it is easy to guess how that gentleman employs them in the carrying out of a photographic process. An ordinary glass negative, possessing an image which has been formed by the deposition of silver particles, is prepared in a suitable manner to protect it from injury by contact with the mercury (such, for instance, as coating it in some way with platinum or carbon particles), and the picture is then exposed to the action of mercury vapour. The vapour condenses, in a more or less concentrated form, upon the image—in the same way, pretty well, as it becomes deposited upon, and develops, the latent image in the daguerreotype process—and subsequently the plate thus treated is brought into contact with the sensitive paper. The consequence is that the minute particles of mercury deposited all over the image exercise a reducing action upon the salts on the surface of the paper, and a print results of the original photograph, possessing the same gradation of tint as the original. Indeed, when nitrate of silver is employed for sensitising the paper, the photograph secured is in every respect similar to that produced by light in the ordinary silver printing process, and the picture is forthwith toned and fixed in the same way, in fact, as one of these; in the one case, however, the reduction of the silver salts has been brought about by mercury vapour, while in the other light alone has been the reducing agent. Impressions obtained by means of platinum and palladium salts need simply to be washed in water in order that they may be permanently fixed. These latter, in truth, are so indestructible and inalterable that they cannot be destroyed except by a chemical agent which would at the same time radically injure the paper, or other basis, upon which they rest.

This process of photography is not yet in such an advanced state as to be of any practical importance; but, nevertheless, it is certainly one of the most ingenious and interesting discoveries made of late in this branch of Science. The great advantage it possesses is that of printing without the aid of light, and yet producing prints with detail and half-tone dependent upon delicate chemical reaction—such rare gradation being secured as our present light-printed pictures (silver and carbon prints) alone possess. A mechanical printing process could, of course, easily be worked out from these data, if considered desirable; and, indeed, it is by no means improbable that this will be the most successful way of applying the discoveries in a practical form. But even in the event of no practical use at all being made of the process—for this is indeed questionable—the research, regarded from a purely scientific point of view, is deserving of the highest eulogium.

H. Baden Pritchard

NOTES

In another column will be found full details of the observations of the Total Eclipse of December 12, made at Bekul, by Mr. Norman Lockyer and Captain Maclear. In future numbers we hope to give similar reports from the observers at the other stations. The weather was very favourable at all the stations, with only one exception.

M. Janssen writes as follows to the French Academy of Sciences, under date Sholoor, Neelgherry, 12th of December, 1871, 10 A.M.:—"I have just observed the eclipse, only a few moments since, with an admirable sky, and whilst still under the emotion caused by the splendid phenomenon of which I have just been a witness, I address a few lines to you by the Bombay courier, who is to start instantly. The result of my observations at Sholoor indicates without any doubt the solar origin of the corona, and the existence of matter beyond the chromosphere." And in a letter to M. Faye, written half an hour later, he says:—"I have just seen the corona, as it was impossible for me to do in 1868, when I was entirely occupied with the spectrum of the protuberances. Nothing can be finer, nothing more luminous, with peculiar forms which exclude all possibility of a terrestrial atmospheric origin. The spectrum contains a very remarkable brilliant green line already indicated; it is not continuous, as has been asserted, and I have found in it indications of the obscure lines of the solar spectrum (especially D). I believe the question whether the corona is due to the terrestrial atmosphere is settled, and we have before us the prospect of the study of the extra-solar regions, which will be very interesting and fertile."

Prof. Huxley's friends, and the scientific world generally, will learn with great regret that he has been compelled to relinquish all work for the present, his medical advisers having ordered him complete rest for two months, for which purpose he has just started for Egypt. There is every prospect that at the end of the time he will return to his old work with renewed vigour.

The Regius Professorship of Physic in the University of Cambridge has become vacant by the resignation of Dr. Bond, who has held the office since 1851.

The Council of the College of Preceptors has arranged for the delivery of a series of three lectures to the members of the college and their friends, on the teaching of science in secondary schools. The first lecture of the series, "On Teaching Physics," was delivered at the rooms of the College, 42, Queen Square, on Saturday evening, the 13th instant, by Professor G. C. Foster, F.R.S.; the second, "On Teaching Mechanics," was delivered yesterday (Wednesday) evening by Prof. W. G. Adams; and the third, "On Teaching Botany and Geology," is to be delivered on Monday evening, 22nd inst., by Mr. J. M. Wilson, of Rugby. The point mainly insisted on by Prof. Foster in his lecture, was the necessity, in order to make the study of Physics of much use as a training for the mind, that the pupils should not only see, but actually make experiments for themselves, so that the principal facts and phenomena discussed may be known to them as matters within their own experience.

A series of lectures will be delivered in Gresham College, Basinghall Street, by Mr. E. Symes Thompson, M.D., F.R.C.P., as follows:—Thursday, January 18, 1872, On the Digestive Organs in Health and Disease (continued from last course); Friday, January 19, 1872, On the Blood Vessels; Saturday, January 20, 1872, On the Pulse.

At the first Anniversary Meeting of the Anthropological Institute, held January 15, Sir John Lubbock, Bart., M.P., F.R.S., president, in the chair, the president delivered an address, and the officers and councils to serve for 1872 were elected as follows:—President—Sir John Lubbock, Bart., M.P., F.R.S.; Vice-Presidents—Mr. W. Blackmore, Prof. Busk, F.R.S., Dr. Charnock, Mr. John Evans, F.R.S., Mr. George Harris, Prof. Huxley, F.R.S.; Director—Mr. E. W. Brabrook; Treasurer—Mr. J. W. Flower; Council—Mr. H. C. Bohn, Captain R. F. Burton, Mr. James Butler, Mr. A. Campbell, M.D., F.R.S., Mr. Hyde Clarke, Mr. J. Barnard Davis, M.D., Mr. Robert Dunn, Mr. David Forbes, F.R.S., Colonel A. Lane Fox, Mr. A. W. Franks, Sir Duncan Gibb, Bart., M.D., Mr. Joseph Kaines, Mr. Richard King, M.D., Mr. A. L. Lewis, Mr. Clements R. Markham, Captain Bedford Pim, R.N., Mr. F. G. Price, Mr. C. Robert des Ruffières, Mr. Spottiswoode, V.P.R.S., Mr. C. Staniland Wake.

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MR. SAMUEL SHARPE has presented the sum of 4,000*l.* to University College towards the building fund, and Mr. J. Pemberton Heywood has given a donation of 1,000*l.* towards the same object. The executors of the late Mr. Felix Slade have given 1,600*l.* towards the cost of the fine-art buildings and to provide casts and other appliances for the students.

AT a recent session of the Council of University College, it was decided to admit ladies attending the class of political economy to compete for the prizes and also for the Hume and Ricardo Scholarships awarded for proficiency in that science.

THE young Hippopotamus, which we announced as having been born on Tuesday last week at the Garden of the Zoological Society, died the following day. The body has been sent for dissection to Prof. Humphry at Cambridge. We may hope therefore to hear more of him in the pages of the *Journal of Anatomy and Physiology*, which is edited by the professor.

WE are informed that the next number of the *Quarterly Journal of Science* will contain a detailed account by the editor of the scientific principles involved in the A B C Sewage Company's process, of which, according to the *Times*, Mr. Crookes, F.R.S., has accepted the scientific direction.

THE first part is just published at Leipzig of a new edition of Pritzel's "Thesaurus Litteraturæ Botanicæ," or index of works on the various branches of botany, published in all languages, from the earliest times. As it is more than twenty years since the publication of the last edition, the additions are very numerous.

THE President of the Medical Society of the county of New York, Dr. Abraham Jacobi, has placed in the hands of its treasurer 400 dols., to be awarded for the best essay on "A History of the Diseases of Infancy and Childhood in the United States, and of their Pathology and Therapeutics." Competitors will send their essays in English, with motto attached, and address of the writer, with the same motto, in a sealed envelope, to the present Secretary of the Society, Dr. Alfred E. M. Purdy. 123, East Thirty-eighth Street, on or before January 1, 1873 The committee are authorised by the society to withhold the prize if the essays submitted should not merit it.

DR. J. W. FOSTER, President, and Mr. William Stimpson, Secretary of the Chicago Academy of Sciences, have issued a circular informing the scientific world of the extent of the losses suffered by the Institution through the calamitous fire in that city. These comprise, besides a very large number of other collections of great value, the Audubon Club collection, consisting of very finely mounted specimens of the game birds and mammals, both of America and of Europe and Asia, about 400 in number; the State collection of Insects, recently purchased by the State of the heirs of the late State Entomologist, Mr. B. D. Walsh, for 2,000 dols., but of great scientific value from the number of types it contained; the splendid series of specimens illustrative of the natural history of Alaska, collected in 1865-69 by Bischoff and the naturalists of the W. U. Telegraph Expedition; the Smithsonian collection of Crustacea, undoubtedly the largest alcoholic collection in the world, which filled over 10 000 jars, and contained the types of the species described by Prof. Dana and other American authors, besides hundreds of new species, many of which were described in manuscripts lost by the same fire; the Invertebrates of the U.S. North Pacific Exploring Expedition, collected in great part in Japanese seas by the secretary in 1853-56, which besides Crustacea, included in the last item, embraced great numbers of Annelides, Mollusca, and Radiata, most of which remain as yet undescribed, except in manuscripts also lost; the collection of the marine shells of the coast of the United States, made by the secretary and his correspondents during twenty years of dredgings and general research on every part of the coast from Maine to Texas; nearly every species was illustrated by specimens from every locality in which it occurs, not only on our own shores, but on those of Europe and the Arctic Sea, and in the Tertiary and Quaternary formations, showing the effect of climatic influences, geological age, &c.; this collection embraced about 8,000 separate lots of specimens; the deep-sea Crustacea and Mollusca, dredged in the Gulf Stream by M. Pourtales, of the U. S. Coast Survey, in the years 1867, '68, and '69, which had been placed in the hands of the secretary for description; the results of the deep-sea dredgings in Lake Michigan, by the Academy in 1870 and 1871, the work of the latter year having been performed by Mr. J. W. Milner; the Arctic collections of the late Director of the Academy, Robert Kenicott, made during the years 1859-61. The general collection contained about 2,000 mammals, 30 mounted skeletons, including two mastodons, an African elephant, sea otter, elephant-seal, &c., 10,000 birds, 1,000 nests of eggs, and a great quantity of eggs without nests, 1,000 reptiles, 5,000 fishes, including many large sharks and rays, 15,000 species of insects and other articulates, 5,000 species of shells, with immense numbers of duplicates, 1,000 jars of molluscs in alcohol, 3,000 jars or "lots" of radiates, including several hundred corals, 8,000 species of plants, 15,000 specimens of fossils and 4,000 minerals. In Archæology there were about 1,000 specimens, all American; and the Ethnological collection embraced a very fine series of the clothing and implements of the Esquimaux of Anderson River, collected by Robert Kenicott and his Arctic friends, and presented by the Smithsonian Institution. The Academy desires to announce that although now laid prostrate by the terrible disaster it has suffered, it will soon rise to refill its place among its sister institutions. The trustees have determined to build up again the material interests of the Institution, notwithstanding the terrible losses which they, in common with all of its patrons, have suffered. The publication of its Transactions will soon be resumed. The Academy would therefore take this opportunity to appeal to its correspondents for the donation of their own publications of the past few years, to replace those lost, for which it was also indebted to their generosity.

PROF. NATHAN SHEPPARD, of the University of Chicago, has written to the papers to state the present position of the University of Chicago, and of the Observatory, which is well known in the astronomical circles of Europe. The buildings fortunately escaped, but the fire has left the University in very serious financial difficulties. Many of the gentlemen upon whom the University, and especially the Observatory, was dependent are so reduced in circumstances as to be unable to meet their engagements. The consequence is that the resources of the University are suddenly and greatly abridged. In fact, its income, aside from its tuition fees, is entirely cut off. The Observatory is the first department to feel this loss. A letter just received from Chicago says it is feared that the eminent director, Prof. Truman H. Safford, would be obliged to leave his post for want of support. This will be sad news to the professional correspondents of Prof. Safford in Europe. When the University was founded, about fifteen years ago, a few public-spirited gentlemen rallied around it, and under their self-sacrificing care it has been housed in a commodious and elegant (although unfinished) building, at a cost, including Observatory, telescope, &c., of about forty thousand pounds; and now has, in all departments of study (preparatory, classical, scientific, and law), twelve professors and about 250 students. In conclusion, the Professor, dating from 77, Upper Thames Street, London, asks any reader who would care to lend a helping hand to do so, and to follow in the wake of a Scotch gentleman who has generously offered to head the subscription list with 50*l.*

INOCULATION has by the Indian Legislature been forbidden in the districts of the twenty-four Pergunnahs, Nuddwa, Burdwan, Hooghly, and Howrah in Bengal.

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